

**Supplemental Table 1: Control Proteins**

<b>Protein</b>	<b>Expression System</b>	<b>Manufacturer</b>	<b>Catalogue No.</b>
Influenza A H1N1 Nucleoprotein (NP)	Baculovirus-Insect Cell	Sino Biological	11675-V08B
Epstein-Barr Virus (EBV) Glycoprotein gp350	Baculovirus-Insect Cell	Sino Biological	40373-V08B
Glutathione S-Transferase Alpha 1 (GSTA1)	HEK293	Sino Biological	15237-H08H
Tetanus Toxoid		Calbiochem	582231

**Supplemental Table 2: SARS-CoV-2 Proteins**

Protein	Variant	Mutations	Expression System	Conjugate	Manufacturer	Catalogue No.
Spike S1			HEK293		Acro Biosystems	S1N-C52H2
Spike Receptor-Binding Domain (RBD)			HEK293		Acro Biosystems	SPD-C52H2
Spike S2			HEK293		Acro Biosystems	S2N-C52H5
Nucleocapsid (N)			HEK293		Acro Biosystems	NUN-C5221
Spike S1	Omicron (B.1.1.529)	A67V, HV69-70del, T95I, G142D, VYY143-145del, N211del, L212I, ins214EPE, G339D, S371L, S373P, S375F, K417N, N440K, G446S, S477N, T478K, E484A, Q493R, G496S, Q498R, N501Y, Y505H, T547K, D614G, H655Y, N679K, P681H)	HEK293		Acro Biosystems	S1N-C52Ha
Spike Receptor-Binding Domain (RBD)	Omicron (B.1.1.529)	G339D, S371L, S373P, S375F, K417N, N440K, G446S, S477N, T478K, E484A, Q493R, G496S, Q498R, N501Y, Y505H	HEK293		Acro Biosystems	SPD-C522e
Receptor-Binding Domain (RBD)	Omicron (B.1.1.529)	G339D, S371L, S373P, S375F, K417N, N440K, G446S, S477N, T478K, E484A, Q493R, G496S, Q498R, N501Y, Y505H	HEK293	HRP	GenScript	Z03730

**Supplemental Table 3: Monoclonal Antibodies for Flow Cytometry**

Specificity	Conjugate	Clone	Isotype	Manufacturer	Test
CD19	APC-Vio 770	LT19,	Mouse IgG1k	Miltenyi Biotec	Spike B Cell Analysis Kit
CD27	Vio Bright FITC (	M-T271	Mouse IgG1k	Miltenyi Biotec	
IgG	VioBlue®	IS11-3B2.2.3	Mouse IgG1k	Miltenyi Biotec	
IgA	VioGreen™	IS11-8E10	Mouse IgG1k	Miltenyi Biotec	
IgM	APC	PJ2-22H3	Mouse IgG1	Miltenyi Biotec	
CD3	APC	REA613	Recombinant human IgG1	Miltenyi Biotec	SARS-CoV-2 T Cell Analysis Kit
CD4	Vio® Bright B515	REA623	Recombinant human IgG1	Miltenyi Biotec	
CD8	VioGreen™	REA734	Recombinant human IgG1	Miltenyi Biotec	
IFN-γ	PE	REA600	Recombinant human IgG1	Miltenyi Biotec	
TNF-α	PE-Vio® 770	REA656	Recombinant human IgG1	Miltenyi Biotec	
CD14	VioBlue®	REA599	Recombinant human IgG1	Miltenyi Biotec	
CD20	VioBlue®	REA780	Recombinant human IgG1	Miltenyi Biotec	
CD154	APC/Vio® 770	REA238	Recombinant human IgG1	Miltenyi Biotec	Phenotypic B Cell Analysis
CD19	Pacific Blue®	LT19	Mouse IgG1	Bio-Rad	
CD20	Brilliant Violet 510™	2H7	Mouse IgG2b	BioLegend	
CD24	PE	ML5	Mouse IgG2ak	BioLegend	
CD27	Alexa Fluor 700	LT27	Mouse IgG2a	Bio-Rad	
CD38	APC/Fire™ 750	HB-7	Mouse IgG1k	BioLegend	
IgD	FITC	Polyclonal	Goat IgG	Bio-Rad	
CD3	Alexa Fluor® 700	OKT3	Mouse IgG2ak	Bio-Legend	
CD14	Alexa Fluor® 700	TÜK4	Mouse IgG2ak	Bio-Rad	
CD56	Alexa Fluor® 700	123C3	Mouse IgG1	Bio-Rad	